DOCUMENT RESUME

ED 184 709 PS 011 351

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TITLE Identification of Selected Child-Resistant Closures (Continuous Thread, Lug-Bayonet, and Snap Closures).
INSTITUTION Consumer Product Safety Commission, Washington, D.C.
PUB DATE Aug 78
NOTE 50p.
AVAILABLE FROM Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (Stock No. 052-011-00194-5, $2.30)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Children: Consumer Science: *Merchandise Information: *Safety
IDENTIFIERS *Child Resistant Packaging

ABSTRACT

This publication describes a selected group of child-resistant closures used in packaging five categories of medicine and household products. The material in the document was collected to train survey personnel to identify closures for a planned household study of the effectiveness of child-resistant packaging. The 39 closures described are of three types: continuous threaded, lug-bayonet, and snap. Product manufacturers, brand names and ASTM subcategories are listed. Photographs of closures accompany most descriptions. (Author/RH)

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IDENTIFICATION OF SELECTED CHILD-RESISTANT CLOSURES (CONTINUOUS THREAD, LUG-BAYONET, AND SNAP CLOSURES)

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PS011351

August 1978
Published by
Division of Safety Packaging & Scientific Coordination
Directorate for Engineering & Science
U.S. Consumer Product Safety Commission

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Stock No. 033-011-00194-5

The authors wish to thank Georg Maisel and Fred Marozzi, Ph.D. for their helpful advice. We wish to thank Ms Judy Thomas, Mr. Sam Allen and others who were invaluable in the preparation of this document.

This publication describes a selected group of child-resistant closures. The child-resistant feature is based on the manufacturer's designation. However, the use of a particular closure in this document is for illustrative purposes only and does not constitute Commission approval or endorsement.

The Commission is in the process of conducting a household survey to determine the effectiveness/functionality of child-resistant packaging. Consequently this document was developed to train the survey personnel in the identification of certain child-resistant closures. Presently the survey will be concerned with only five product areas:

Aspirin Containing Products,
Oral Prescription Drugs,
Furniture Polish,
Turpentine,
Paint Solvents.

The child-resistant closures most frequently used for these five product categories are the continuous thread, lug-bayonet, or snap type. Not all of the ASTM subcategories related to these closure categories are included since they are generally not used for these particular products. (Unit dose packaging was not included at all in the survey.) This guide is not intended to be comprehensive for all child-resistant closures on the market even within the five product areas being surveyed.

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Manufacturer: ALCOA

Model: Tot-Gard I

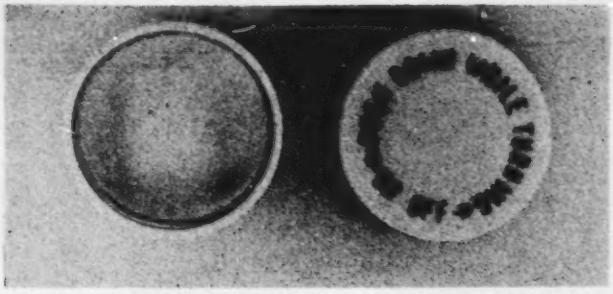
ASTM: Type IA

Description: This is a two piece plastic/metal continuous threaded closure. The closure is opened by pushing the closure down and turning counter-clockwise at the same time. The instructions are in raised capital letters. The instructions are:

PUSH DOWN, OFF ON, WHILE TURNING

or

←ON, PUSH DOWN WHILE TURNING, OFF →



Manufacturer: Ferdinand Gutman & Company

Model: Saf Lok

ASTM: Type IA

Description: This is a two piece metal/metal or clear plastic/metal continuous threaded closure. The closure is opened by pushing down while turning. The metal undercap has notches that fit into the ridges inside the overcap and that lock into position when pushing down. The instructions vary on different models as does the appearance of the instructions. The instructions are:

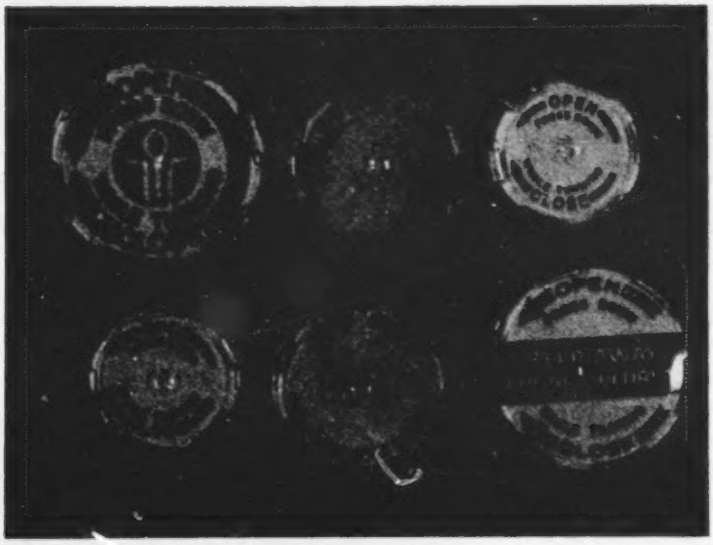
OPEN, PRESS DOWN, WHILE TURNING, CLOSE (TOP OF CAP)

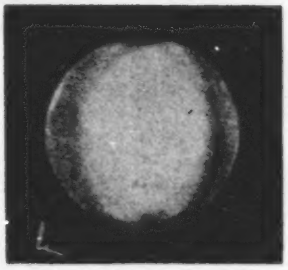
or

TO CLOSE, TURN CAP SEVERAL TIMES WHILE PRESSING DOWN (SIDE OF CAP)

or

OPEN, PRESS DOWN, KEEP AWAY, FROM CHILDREN, WHILE TURNING, CLOSE





Manufacturer: Kerr Glass Manufacturing Company

Model: CR-I

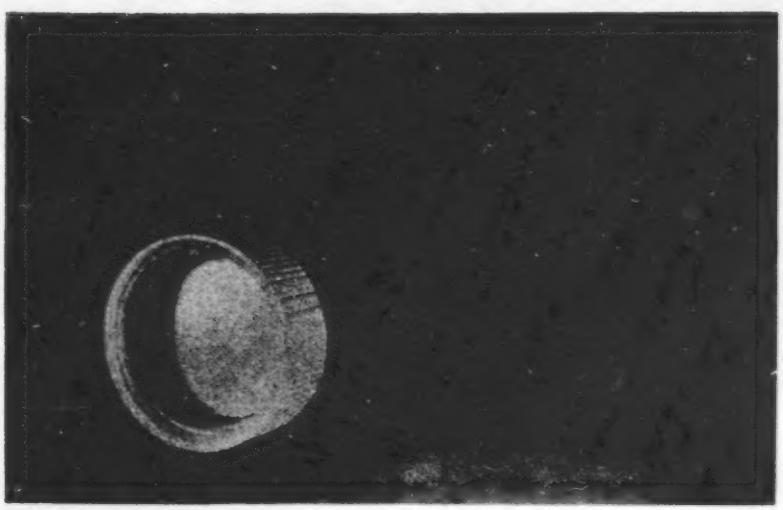
ASTM: Type IA

Description: The two piece plastic/plastic continuous threaded closure is opened by pushing down and turning counter-clockwise. The closure has non-uniform piping on the side (see arrow on side view of closure in photograph). The instructions on top of the closure are in raised capital block letters. The instructions are:

← PUSH DOWN & TURN ←, CLOSE TIGHTLY, TO OPEN

or

← PRESS DOWN ←, WHILE, TURNING



Manufacturer: Owens-Illinois

Model: Click Loc I

Click Loc II

ASTM: Type IA

Description: These two piece plastic/plastic closures are continuous threaded closures with a push down and counter-clockwise turn opening force. These closures are different from the kerr cap in the piping on the side of the closure and in the lettering. The Clic Loc I and II have uniform thin piping for the entire circumference of the closure, (see side view in the photograph). The Clic Loc I uses raised small size capital letters for the instructions which take up the entire smooth surfaced top of the closure. The Clic Loc II uses raised medium size capital letters in a circle along the outer rim of the rough surfaced top of the closure. There is a raised ring all the way around the edge of the top encompassing the instructions on the Clic Loc II. The instructions are:

Clic Loc I

→ CLOSE TIGHTLY, TO OPEN, PUSH DOWN, WHILE TURNING, OPEN →

Clic Loc II

CLOSE TIGHTLY, → WHILE PUSHING DOWN TURN →

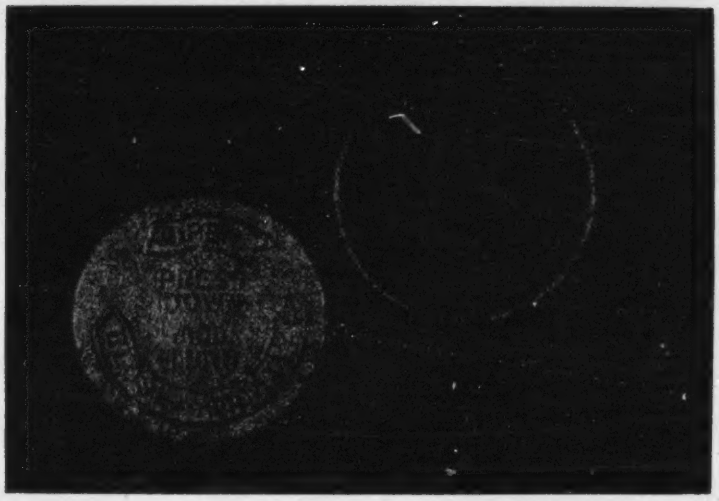
Manufacturer: Poly Seal Corporation

Model: Seal Safe II

ASTM: Type IA

Description: This is a two piece plastic threaded closure. The inner cap is a standard threaded closure. The inside of the inner cap has a clear plastic conical shaped cap liner. The overcap which locks onto the inner cap has smooth sides and the instructions are in raised capital letters. To open the outer cap is depressed onto the inner cap while the closure is simultaneously turned in a counter-clockwise direction. The instructions are:

OPEN, PRESS, DOWN, AND, TURN, CLOSE TIGHTLY



Manufacturer: Van Blarcom Closure Inc.

Model: 1. Van Blarcom Generation II (2-piece plastic/metal closure)
2. Van Blarcom Saf Cap (2-piece plastic/ plastic closure)
3. Van Blarcom 2-piece metal/metal

ASTM: Type IA

Description: 1. This is a two piece plastic/metal threaded closure. The overcap is plastic with a donut hole on the top. The sides have verticle ribs evenly spaced around the entire circumference. The bottom of the overcap is slightly flared. The metal inner cap is a standard threaded closure with diagonal ribs along the uper edge around the entire circumference. These ribs match diagonal ribs located on the upper inner edge of the plastic overcap. The instructions on the plastic overcap are:

← PUSH DOWN & TURN ←, TO OPEN

2. This is a two piece plastic/plastic threaded closure. These instructions are in raised letters. The instructions on the overcap are:

⇐ PUSH DOWN & TURN ⇐, TO OPEN

3. This is a two piece metal on metal closure. The top piece is a metal crown which sits on a standard threaded metal closure. The top of the crown has the instructions stamped on it. The instructions are:

PRESS & TURN, ← TO OPEN →

or

PRESS & TURN, ← CLOSE - OPEN →

All models work on the same principle. The outer piece is depressed onto the inner piece which locks the two together and the closure is turned simultaneously in a counter-clockwise direction to open.

Manufacturer: Dougherty Brothers Company

Model: Lifeguard

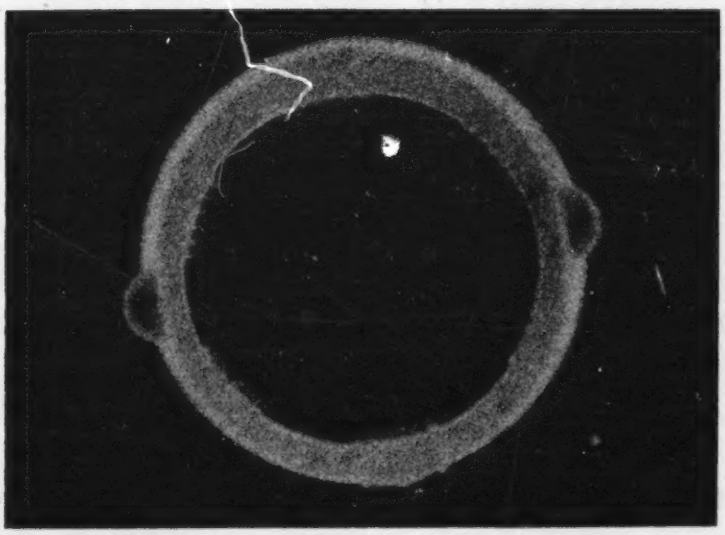
ASTM: Type IB

Description: This is a one piece plastic continuous threaded closure. The closure is generally used as a dropper assembly. The bottom of the closure has two triangles or dots 180 degrees apart. Two tabs are perpendicular to the triangles or dots and also 180 degrees apart. The closure is opened by squeezing the two triangles or dots while turning the closure counter-clockwise. The triangle version has the instructions in raised letters but some of the dot versions have no written instructions. The instructions are:

SQUEEZE AT▲'S, WHILE TURNING

or

SQUEEZE DOTS, WHILE TURNING



Manufacturer: Sunbeam Plastics Corporation

Model: Easy Lok

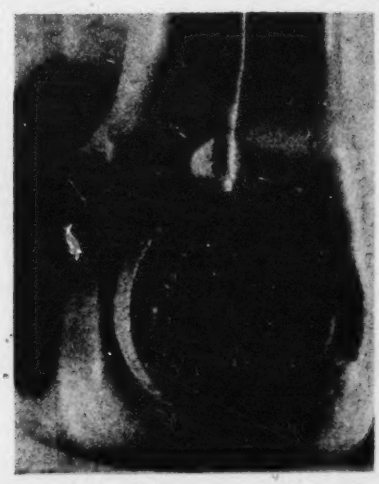
ASTM: Type IB

Description: This two piece plastic/plastic continuous threaded closure requires a localized squeeze force to open. A tab which is on the side of the closure, makes the inner part of the closure visible on top (see photograph). The tab is held in while unscrewing the cap. The instructions are:

HOLD TAB IN ↓ WHILE UNSCREWING

or

SQUEEZE TAB ↓ TO UNSCREW



Manufacturer: Sunbeam Plastics Corporation

Model: Snap Lok

ASTM: Type IB

Description: This is a one piece plastic continuous threaded closure. It has a tab on the sidenear the bottom that must be held in while unscrewing the closure. The tab is stopped by a bayonet like protrusion on the container shoulder, (one cannot open closure without holding tab in). The instructions are:

PRESS, TAB WITH, THUMB WHILE, UNSCREWING

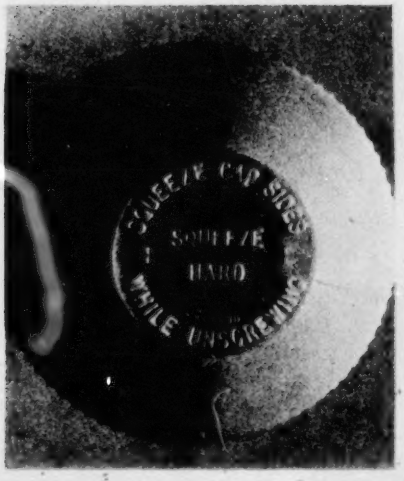
Manufacturer: Sunbeam Plastics Corporation

Model: Squeeze Lok

ASTM: Type IB

Description: This one piece plastic continuous threaded cap requires squeezing on indicated opposite sides of the closure while turning counter-clockwise to open. The closure has two lug-like extensions at 90 degree angles to the squeeze points. These lug-like extensions hold into two bayonets on the container shoulder preventing opening (unless closure sides are squeezed). The instructions are:

SQUEEZE CAP SIDES, SQUEEZE ⟷ HARD, WHILE UNSCREWING



Manufacturer: Van Blarcom Closures Inc.

Model: Van Blarcom Generation I (old 2-piece plastic/metal closure)

ASTM: Type IB

Description: This is a 2-piece plastic/metal threaded closure. The overcap is plastic with a donut hole on top. Two areas on the overcap are ribbed. These areas are squeezed while turning the closure to open it. The instructions going clockwise are:

← TURN → OPEN → SQUEEZE, CLOSE →

NOTE no photograph available; refer to the Van Blarcom Generation II photograph as it is similar to this one in appearance

Manufacturer: Consolidated Closure Corporation

Model: Ring Guard

ASTM: Type IF

Description: This is a two piece plastic threaded closure which involves lifting up and turning to open the closure. This closure has been used on dropper bottles and on vitamins as well as other products. The vitamin cap, such as Miles may consist of an inner and outer cap. The closure normally consists of a threaded closure and an outer ring around the closure sides which is lifted while turning counter-clockwise to open. The instructions are:

← LIFT WHILE TURNING

or

UNSCREW WITH CONSTANT UPWARD PRESSURE

←

Manufacturer: ALCOA

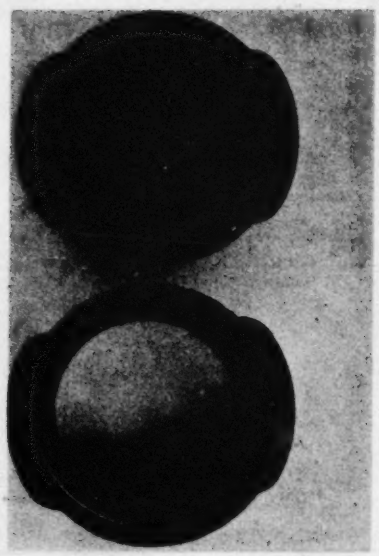
Model: Tot-Gard II

ASTM: Type IG

Description: This is a one piece plastic continuous threaded closure which has two tabs 180 degrees apart on the bottom. The closure is opened by pulling up the two tabs and simultaneously turning the closure counter-clockwise. The instructions are in raised capital letters. The instructions are:

LIFT TABS, ⟵•⟶, WHILE TURNING, TAB, TAB

NOT IN PRODUCTION, NO TEST PROCEDURE REQUIRED



Manufacturer: Mack Wayne Plastics Company

Model: Mack IV

ASTM: Type IH

Description: A fitment with two tabs 180 degrees apart is attached to the container. The one piece plastic continuous threaded closure requires holding the two tabs down while turning counter-clockwise to open the package. This closure requires two hands to open. The closure is often used on cans and plastic bottles. The instructions are:

← PRESS TABS ← WHILE TURNING CAP, RECLOSE TIGHTLY TO LOCK

Manufacturer: M&M Plastics, Inc.

Model: Pharmacy Mate

ASTM: Type IH*

Description: This is a one piece plastic reversible closure which is threaded. In the child-resistant position the closure appears as three concentric circles each smaller than the one below it. The closure screws onto the outside of the vial. The vial has a tab which must be pushed down while turning the closure to open the vial.

In the conventional closure position the closure appears concave with a round protrusion in the center. The closure screws into the inside of the vial in its conventional position.

The old version of this closure is a snap cap IIIA type of child-resistant closure and in the conventional position the closure merely friction fits into the vial.

The instructions on both versions are in raised letters.

The instructions on the new model for the child-resistant closure and conventional positions respectively are:

PRESS TAB DOWN,→TURN →

NOT SAFE, CAUTION, FROM CHILD

The instructions on the old closure child-resistant version are:

LINE UP, ARROWS, LIFT CAP, ⇩

*ASTM type IIIA is the old version of the closure's classification.

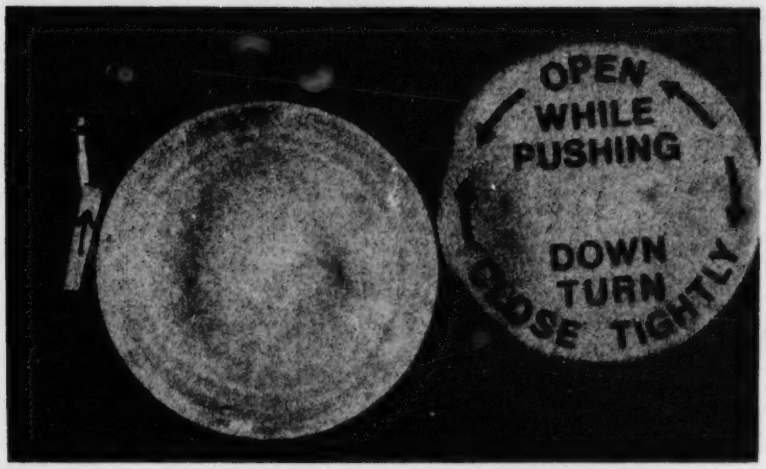
Manufacturer: Brockway Plastics

Model: Uni-Tight

ASTM: Type IIA

Description: This is a one piece plastic lug-bayonet type closure. It is opened by a push down and a counter-clockwise turn force. The square shaped lug is inside the closure. The bayonet which is in the shapeof an upside down "L" is on the vial (see arrow marked area on vial in the photograph). The instructions are printed on the closure in capital letters which are NOT raised. The instructions are:

←OPEN←, WHILE, PUSHING, DOWN, TURN,←CLOSE TIGHTLY ←



Manufacturer: ITL Industries, Inc.

Model: Palm-N-Turn, Med-A-Safe

ASTM: Type IIA

Description: This one piece plastic lug-bayonet type closure is opened by a push down and a counter-clockwise turn force. The square shaped lug is inside the cap. The bayonet which is in the shape of an upside down "L" is on the vial (see arrow marked area on vial in photograph). The closure has medium spaced piping which goes from the top of the closure straight down the sides of the closure. The instructions in raised large capital letters use most of the top of the closure. The instructions while on the closure top appear to be printed on a label placed on the closure. The instructions are:

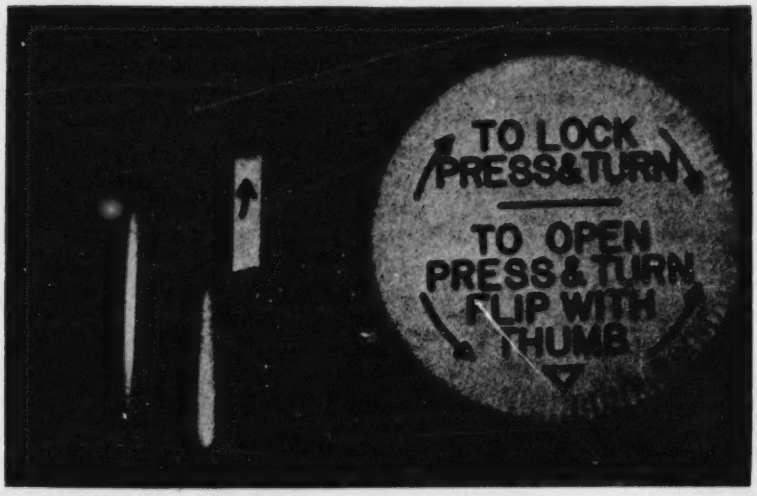
TO LOCK, PRESS & TURN, ↓-↑, TO OPEN, PRESS & TURN, FLIP WITH, THUMB, ▼

OR

TO, UNLOCK, PRESS CAP IN, PALM & TURN, ↓↑, —
TO OPEN, FLIP WITH, THUMB, ▼

OR (old)

PRESS, IN, PALM'N, TURN →



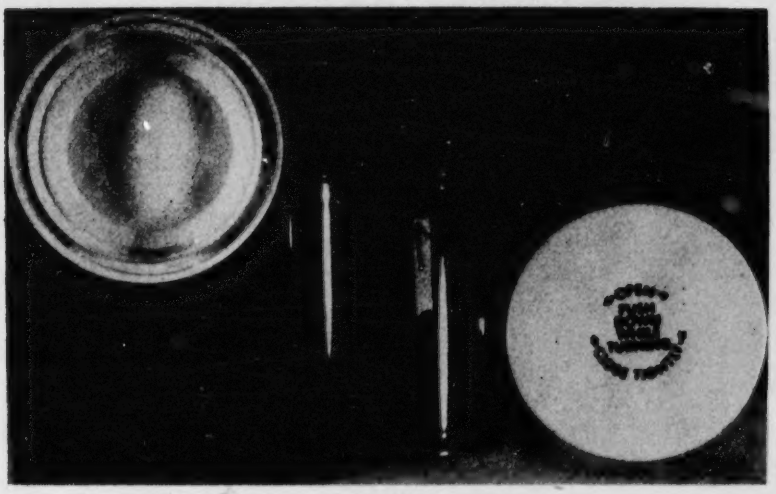
Manufacturer: Kerr Glass Manufacturing Company

Model: CR-V

ASTM: Type IIA

Description: The closure is a one piece plastic lug-bayonet type closure which is opened by a push down and counter-clockwise turn force. The square shaped lug is inside the cap. The bayonet is in the shape of an upside down "L" on the vial (marked by an arrow on the vial in the photograph). The instructions are printed in small capital letters in a circle in the center of the closure. The instructions are:

←OPEN←, PUSH DOWN, WHILE, TURNING,←CLOSE TIGHTLY ←



Manufacturer: Owens Illinois

Model: Screw Loc

ASTM: Type IIA

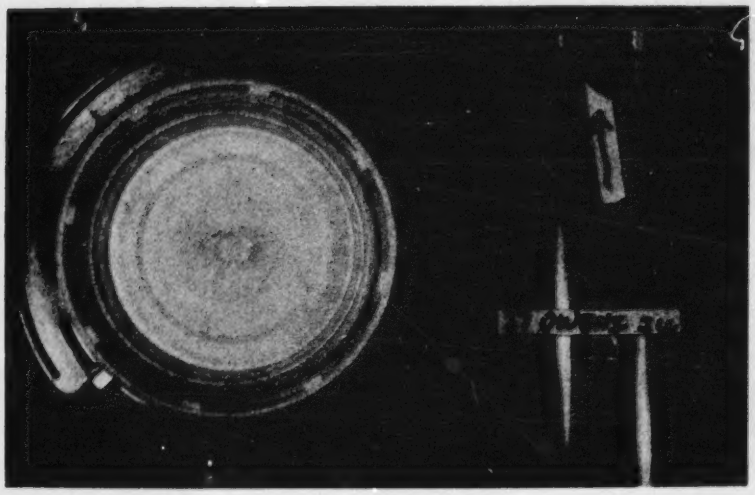
Description: This closure is a one piece plastic lug-bayonet type closure which is opened by a push down and a counter-clockwise turn force. The square shaped lug is inside the closure. The bayonet which is in the shape of an upside down "L" is on the vial (see arrow marked area on vial in photograph). The instructions are printed in raised large capital letters which cover the top of the closure. The instructions are:

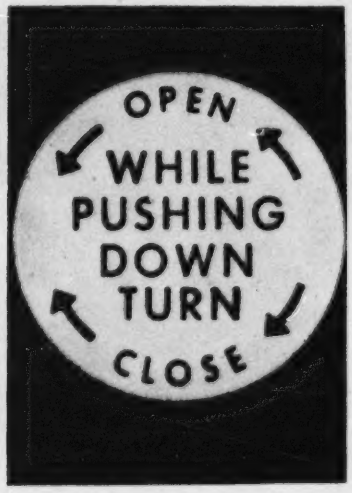
← OPEN ← WHILE, PUSHING, DOWN, TURN ← CLOSE ←

Special: Cap reads; BAYER.

Instructions on label:

TO UNLOCK: Push cap down, firmly with palm. Unscrew.
TO LOCK: Push cap down firmly, with palm. Screw into locking catch.





Manufacturer: Thornton Plastic Company

Model: Tot Lok

ASTM: IIA

Description: This is a plastic lug-bayonet type closure. It is different from other lug-bayonet closures in that it has more lug-bayonet points. The closure is opened by pushing down and turning the cap counter-clockwise, followed by lifting the cap up. The instructions are in raised capital letters, surrounded by a circle of raised dots. The instructions are:

← OPEN; USE; OPEN, FLAT; PALM, PUSH; CAP HARD &; TURN. THEN; LIFT.; READ INSIDE CAP.

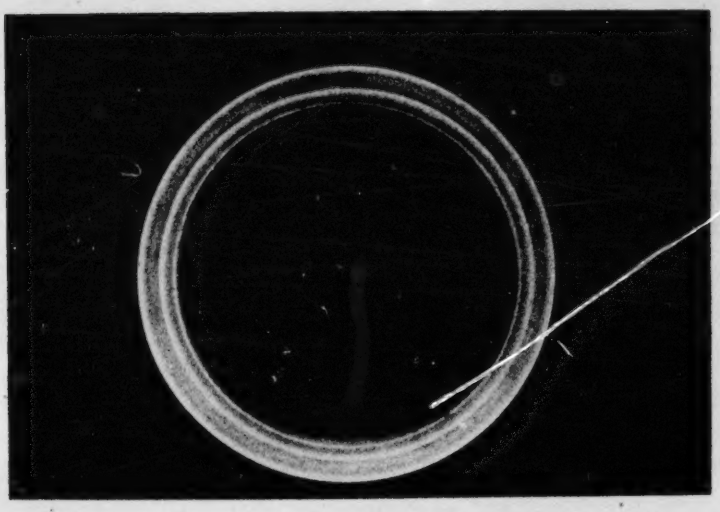
Manufacturer: Sunbeam Plastics Corporation

Model: Old Snap Lok

ASTM: Type IIB

Description: This is a two piece plastic lug-bayonet type closure. There is an inner concentric circle which is the center of the closure. Then there is an outer ring to the closure. To open - one pushes down on the center of the closure while turning counter-clockwise. The instructions are:

PUSH CENTER, WHILE UNSCREWING



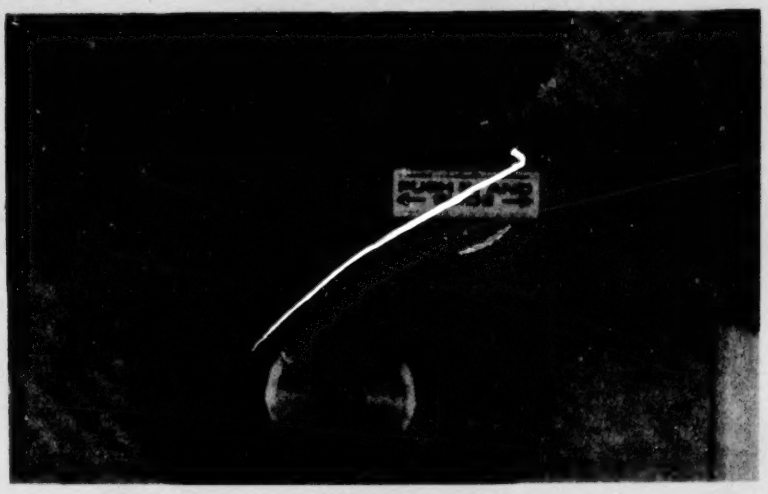
Manufacturer: Creative Packaging Company

Model: Lok-Pak

ASTM: Type IID

Description: This is a plastic box that is hinged along the length of the back side. The front has a slide mechanism which permits opening of the box. The child-resistant feature operates by use or a slide mechanism which fits into a lug. To open, the center area of the slide is depressed and simultaneously the slide is pushed either right or left. To close, the slide is pushed back to the center position until the middle prongs of the slide fit into the lug. The instructions are:

PUSH IN AND ←SLIDE⟶



Manufacturer: Brockway Plastics

Model: Uni-Vial (one and three tab models)

ASTM: Type IIIA

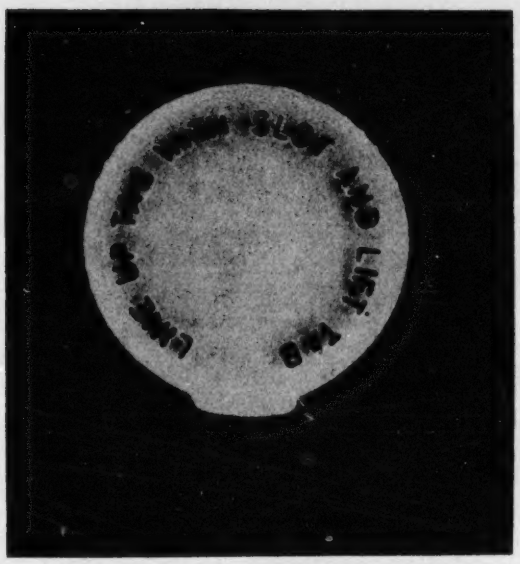
Description: This is a snap cap which requires the alignment of two points and pushing up on a tab to open. The instructions are in raised capital letters. There are two versions of this closure. The one tab version involves lining up the tab with the slot and lifting up the tab. The three tab model involves lining up the middle tab with the slot and lifting up the tab. The instructions are:

one tab cap

LINE UP TAB WITH SLOT AND LIFT TAB

or three tab cap

LINE UP, ARROW, WITH NOTCH, LIFT TAB



Manufacturer: Diamond International Corporation Calmar Division

Model: Snap Safe

ASTM: Type IIIA

Description: This is a one piece plastic reclosable snap cap. It involves the alignment of an arrow on the cap with an arrow on the container followed by pushing up on the cap arrow. The cap arrow, which is in the shape of an upside down triangle, is on the vertical part of the cap. The instructions are in raised letters. The instructions are:

TO OPEN, LINE-UP ARROWS, ON CAP & BOTTLE, PUSH CAP UP, WITH THUMB

or

LINE UP, ARROWS, PUSH OFF

Manufacturer: Henlopen Manufacturing Company, Inc.

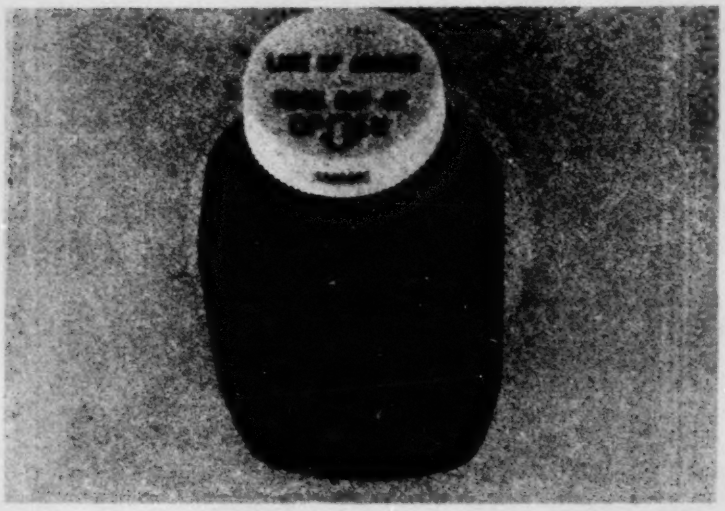
Model: Snap Cap

ASTM: Type IIIA

Description: This is a one piece plastic reclosable snap cap. It involves the alignment of an arrow on the cap with an arrow on the container followed by pushing up the cap arrow. The cap arrow, which is in the shape of an upside down triangle with a protruding edge above it, is on the vertical part of the closure. The instructions are in raised letters. The instructions are:

LINE, UP ARROWS, PUSH CAP UP, OPEN ⇩

NOTE: Closure is not currently in production



Manufacturer: T. James Clark Box and Label Company

Model: Snap Lok

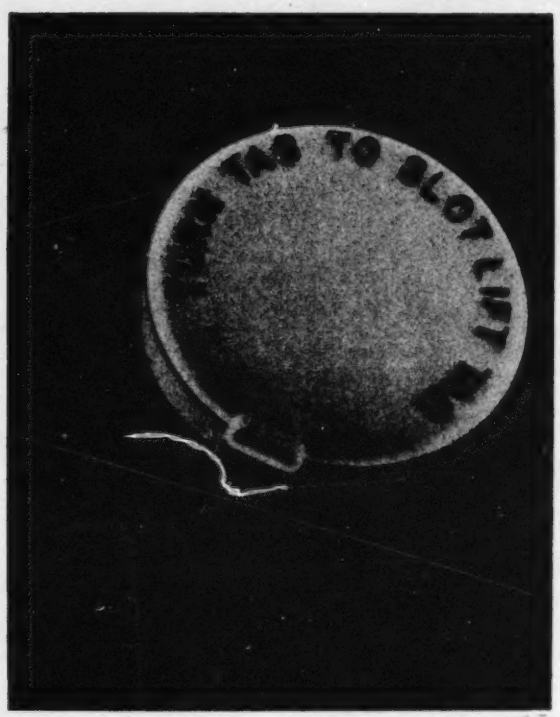
ASTM: Type IIIA

Description: This is a one piece plastic plug reclosable snap cap. It involves the alignment of a tab on the closure with a slot on a plastic ring, which is attached to the outside of the container. Once aligned the tab is lifted up to open the closure. The instructions are in raised letters. The instructions are:

TURN TAB TO SLOT LIFT TAB

or

TURN TAB TO SLOT LIFT OFF



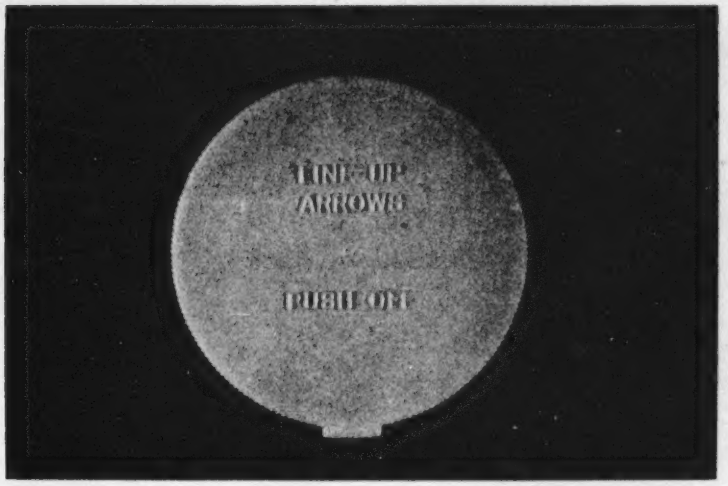
Manufacturer: Lermer Packaging

Model: CR Snap Cap

ASTM: Type IIIA

Description: This is a reclosable snap closure which requires the alignment of two arrows and pushing up to open. The instructions are in raised letters. The instructions are:

LINE UP, ARROWS, PUSH OFF



Manufacturer: Owens Illinois

Model: Snap Loc

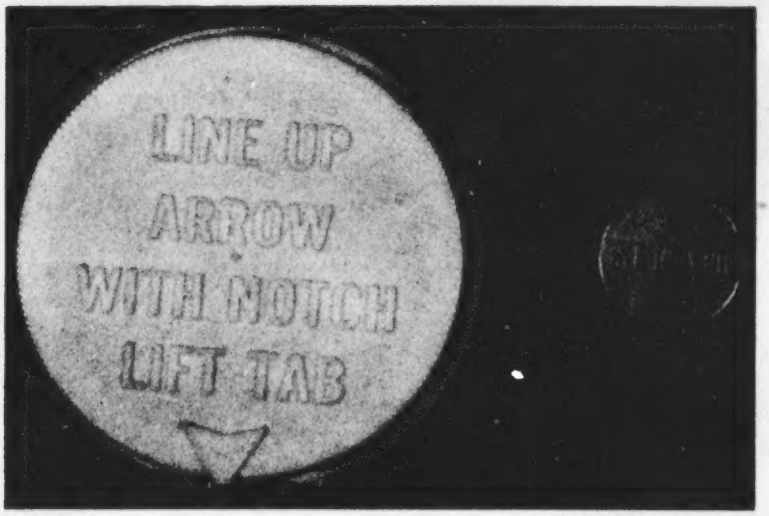
ASTM: Type IIIA

Description: This is a snap cap which requires the alignment of two points and pushing up on a tab to open. The instructions are in raised capital letters. There are two versions of this closure (see photograph). There is a tab on one side on the bottom edge of the closure. The container has a lip which is located just under the closure. There is an opening in this lip on one side only or there is an arrowhead below the lip. The smaller closure, which has the arrowhead below the container lip, is often used on children's aspirin (i.e. St. Joseph's aspirin). The larger version is used commonly on lye products (may not be seen in this pilot study). The instructions are:

LINE UP ARROWS, ST JOSEPH*, PUSH UP, TAB, V

or

LINE UP, ARROW, WITH NOTCH, LIFT TAB, V



*St. Joseph is a brand name, another brand name could be substituted/ omitted here

Manufacturer: Stull Engraving Company

Model: Twist/flip Safety Closure

ASTM: Type IIIA

Description: The plastic closure is permanently attached by means of a plastic strip to a plastic fitment on the container neck. The closure has a tab on it. The tab is protected (in the locked or child-resistant position) by a protrusion of plastic on the outside diameter of the fitment on the container neck. The closure is opened by twisting the cap either right or left and lifting up on the tab when it becomes exposed. The instructions are in raised letters. The instructions are:

TO OPEN, TWIST, FLIP →

Manufacturer: Wheaton Plastics Company

Model: Snap Cap

ASTM: Type IIIA

Description: This is a one piece plastic reclosable snap cap. It involves the alignment of a tab on the cap with an opening on the container skirt followed by pushing the tab up. The closure is in the closed position when it is snapped on and the tab is turned away from the notch. The closure is used on several Bristol Myers products i.e. Bufferin, Excedrin. The instructions are in raised letters. The instructions are:

TURN ARROW, TO, OPENING,

Manufacturer: Continental Can Company

Model: Aspirin Tin

ASTM: Type IIIB

Description: The package is a metal twelve tablet tin. It is opened by exerting pressure on the back top two corners of the tin. This causes the front to pop up and disengage the locking mechanism. The top is then lifted up. To resecure press the front edge down. The instructions are:

PRESS, PRESS RED DOTS WITH BOTH THUMBS, PRESS

or

←, TO OPEN, PRESS BOTH CORNERS, →

Manufacturer: Continental Can Company White Cap Division

Model: Pop Lok

ASTM: IIID

Description: This is a snap type closure. This is a plastic plug type closure which fits into the container. The instructions are in raised lettering. The tab is on the closure. The dot on the tab is pressed which lifts the tab. The tab is pulled, which lifts the cap off the container, or which exposes an orifice for a solution to be poured through. The instructions are:

PRESS THUMBNAIL DOWN ON DOT LIFT TAB & PULL (removable plug)

or

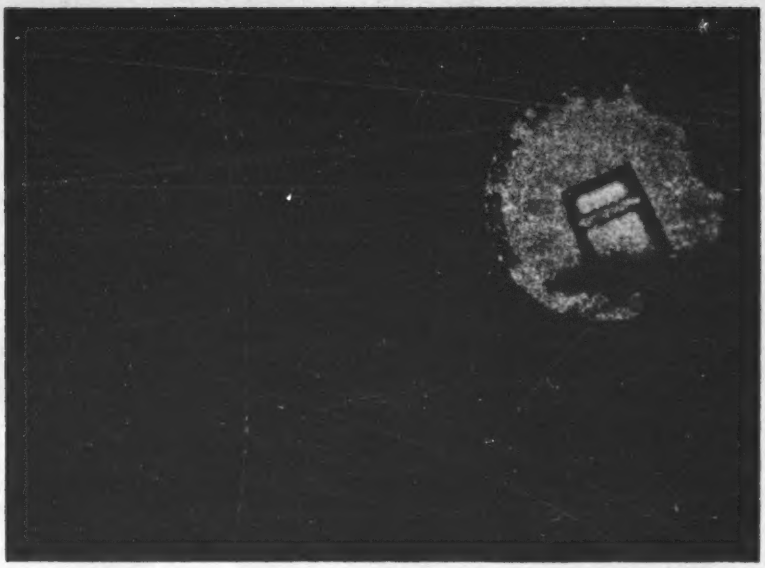
PRESS DOT, TAB, DOT, LIFT TAB (attached)

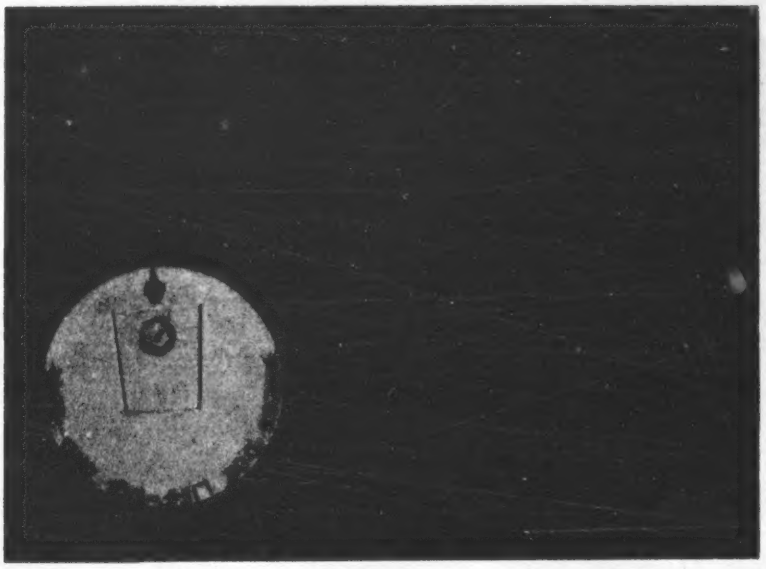
or

PRESS DOT LIFT TAB AND PULL, , (removable cap)

or

PRESS DOT, DOT, , , PRESS DOT (attached)





Manufacturer: Plastic Research Products

Model: PRP Plastic Box

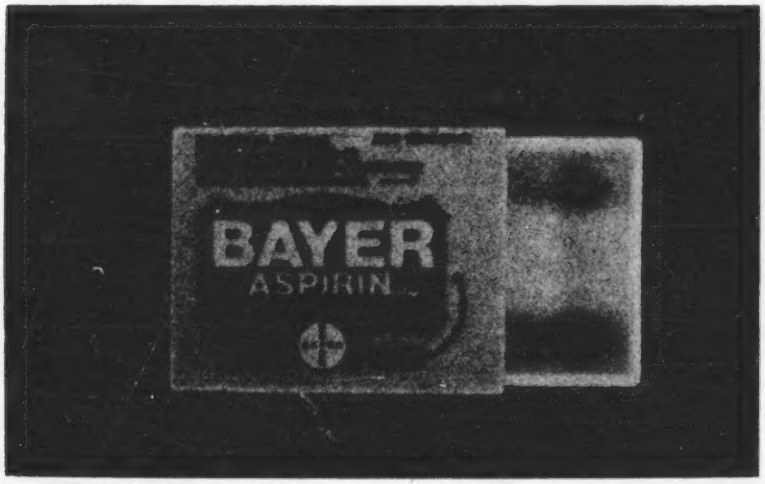
ASTM: Type IIIF

Description: This is a rectangular yellow* plastic box typically used for 12 tablets of aspirin with a slide out plastic tray. When two red dots on the sides are squeezed the tray can be slid out of the box. The instructions are:

TO OPEN: 1. HOLD AND, GENTLY SQUEEZE RED DOTS ON, EACH SIDE PANEL. 2. SLIDE OUT WHITE* TRAY, FROM BOTTOM IN THIS DIRECTION →

or

SQUEEZE RED SIDE GRIPS. SLIDE OUT BOTTOM



*the color of the tray may vary

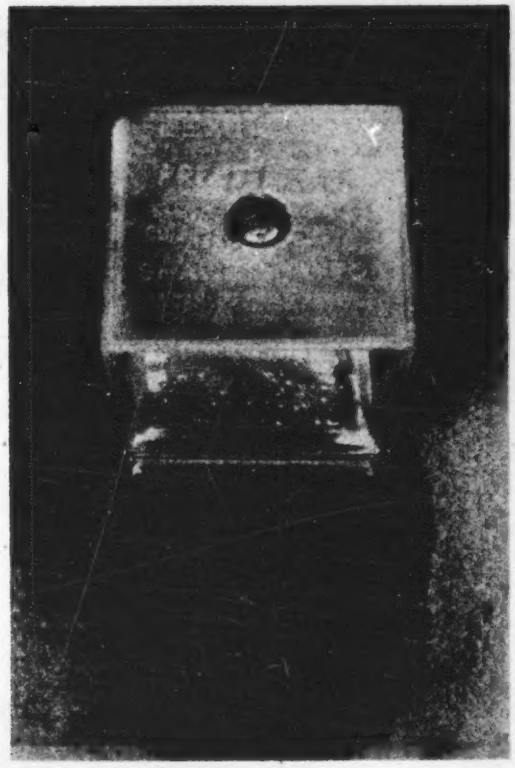
Manufacturer: Shaw Clayton Plastics

Model: Press-N-Pop Safety Container

ASTM: Type IIIF

Description: This is a rectangular non-breakable plastic box. The top is hinged along the back of the container. There are fitments on each side and the front. The instructions are:

PRESS SIDEWALLS, UNTIL LID POPS UP, SLIGHTLY RELEASE, _, PRESS FRONT AND BACK TO UNLOCK, LIFT LID, _, FRONT



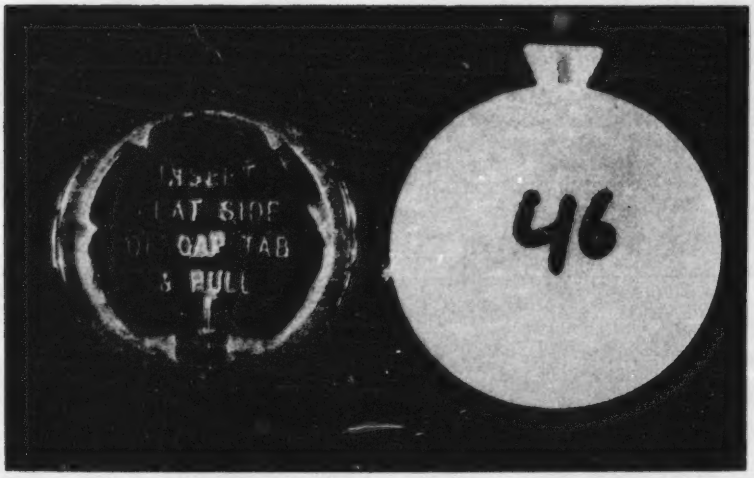
Manufacturer: Continental Plastic Company

Model: Med-Guard

ASTM: Type IIIG

Description: This is a standard reclosable snap closure with an opening tab and a child-resistant plug. The plug is solid with an area on its inside surface into which the flat side of the cap tab is inserted and the plug is pulled out. The instructions on the plug are:

INSERT, FLAT SIDE, OF CAP TAB, & PULL

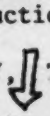


Manufacturer: Myco Research and Development Company

Model: Surelock

ASTM: Type IIIG

Description: This is a snap closure which requires a key to open. There is a plastic fitment attached to the neck of the container. The closure is attached to the fitment with a strip of plastic. The closure contains a key which extends fully across the closure diameter. The key resembles a puzzle piece which when closed fits exactly into the container fitment rim opening. The package is opened by pulling the key out with a fingernail or some device, followed by lifting the closure up. The instructions are:

PULL KEY  TO OPEN

Note: See VICAP page for photograph

Manufacturer: Myco Research and Development Company

Model: Vicap

ASTM: Type IIIG

Description: This is a snap closure which requires a key to open. The bottle and closure are connected by a strip of plastic. The closure contains a key which extends half-way across the closure diameter. The key resembles a puzzle piece which when closed fits exactly into the container rim opening. The package is opened by pulling the key out with a fingernail or some device, followed by lifting the closure up. The instructions are:

PULL KEY ⇩ TO OPEN

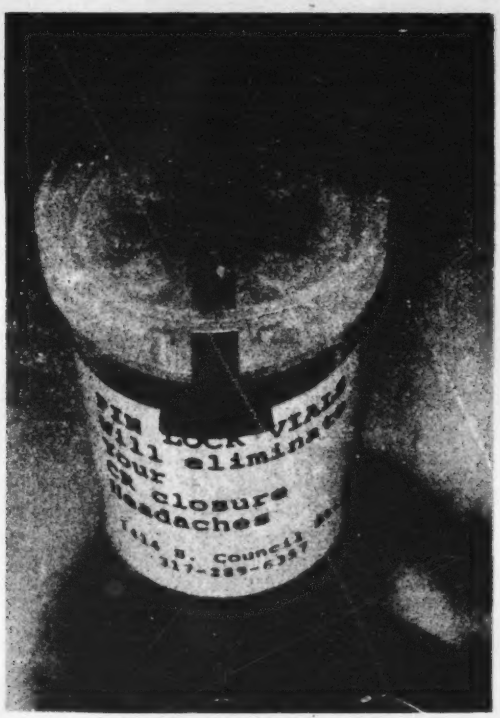
Manufacturer: Pin Lock, Inc.

Model: Pin Lock

ASTM: Type IIIG

Description: This is a snap closure which requires a key to open. The bottle and closure are connected by a strip of plastic. The closure contains a key which extends fully across the closure diameter. The key resembles a puzzle piece which when closed fits exactly into the container rim opening. The package is opened by pulling the key out with a fingernail or some device, followed by lifting the closure up. The instructions are:

PULL PIN, ↓ TO OPEN



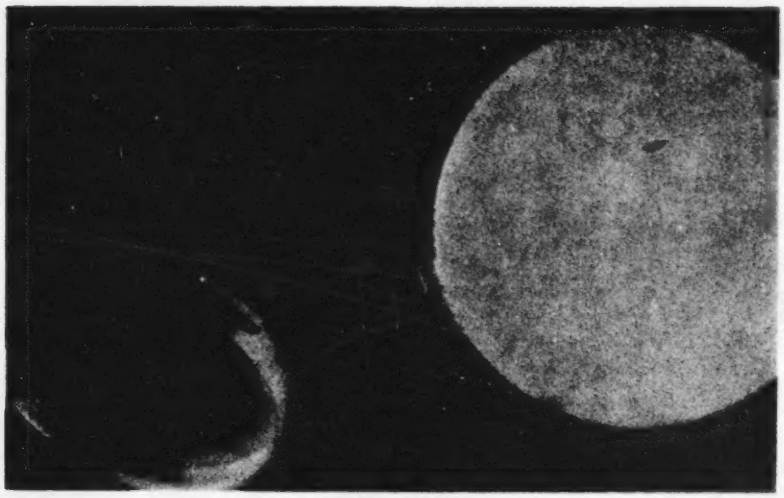
Manufacturer: Plastic Container Corporation

Model: Prex Con (safety plug and safe key cap)

ASTM: Type IIIG

Description: This is a reclosable snap closure with a child-resistant plug. The closure itself is a nonchild-resistant snap cap with an opening tab. The plug has a slot (similar to a child's piggy bank) into which the cap tab is inserted and the plug is pulled out. The instructions on the plug are:

•HOOK CAP TAB IN SLOT; PULL



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